

WHAT IS CLAIMED IS:

- 1 1. A folding knife comprising:
2 a reference piece having an arcuate slot with a convex extension slot positioned at
3 one end of the arcuate slot;
4 a latch cam having an offset pin at least partially engaged in at least one of the
5 arcuate slot or convex extension slot;
6 a blade having a hole configured to receive the latch cam; and
7 a spring mechanically coupled to the offset pin and configured to exert a force on
8 the offset pin in a direction of blade opening
- 1 2. The knife of Claim 1, further comprising:
2 a pivot pin; and
3 wherein the blade further comprises an additional hole configured to receive the
4 pivot pin, and the blade is configured to rotate about an axis of the pivot pin.
- 1 3. The knife of Claim 1, wherein the reference piece comprises a liner.
- 1 4. The knife of Claim 1, wherein the reference piece comprises a handle.
- 1 5. The knife of Claim 1, wherein the offset pin is positioned substantially in
2 the convex extension slot when the blade of the knife is rotated less than a predetermined angle.
- 1 6. The knife of Claim 5, wherein the force exerted by the spring on the offset
2 pin is substantially impeded by at least one wall of the convex extension slot.
- 1 7. The knife of Claim 1, wherein the offset pin is positioned substantially in
2 the arcuate slot when the blade of the knife is rotated greater than a predetermined angle.
- 1 8. The knife of Claim 7, wherein the force exerted by the spring on the offset
2 pin substantially assists the opening of the blade.
- 1 9. The knife of Claim 7, wherein the force exerted by the spring on the offset
2 pin rotates open the blade without additional external force.

1 10. The knife of Claim 1, further comprising:
2 a flipper positioned on a side of the knife opposite a side from which the blade is
3 removed, the flipper configured to receive an external force that at least partially rotates open the
4 blade.

1 11. The knife of Claim 10, wherein the flipper comprises a protrusion on the
2 knife extending through the side of the knife opposite the side from which the blade is removed.

1 12. The knife of Claim 11, wherein the blade opens substantially under the
2 force of the spring when an edge of the flipper is flush with an edge of a knife handle.

1 13. The knife of Claim 11, wherein the blade opens substantially under the
2 force of the spring when an edge of the flipper is above an edge of a knife handle.

1 14. The knife of Claim 1, further comprising a stud mechanically coupled to
2 the blade and configured to receive an external force that at least partially rotates open the blade.

1 15. The knife of Claim 1, wherein the spring comprises a torsional spring
2 wound around a pivot axis of the blade.

1 16. The knife of Claim 1, wherein the spring substantially rotates the blade to
2 a fully open position when the offset pin is positioned substantially within the arcuate slot.

1 17. The knife of Claim 1, wherein the spring comprises:
2 a first spring positioned to a left of the blade; and
3 a second spring positioned to a right of the blade.

1 18. The knife of Claim 1, further comprising a handle configured to position a
2 portion of the spring.

1 19. The knife of Claim 1, wherein an angle from a line tangent to the arcuate
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot
3 measures less than 180 degrees.

1 20. The knife of Claim 1, wherein an angle from a line tangent to the arcuate
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot
3 measures less than 135 degrees.

1 21. The knife of Claim 1, wherein an angle from a line tangent to the arcuate
2 slot at a connection to the convex extension slot to a centerline of the convex extension slot
3 measures greater than 90 degrees.

1 22. A folding knife comprising:
2 a latch cam having an offset pin;
3 a liner having an arcuate slot and a convex extension slot, and configured to
4 position the offset pin in the convex extension slot when the knife is in a closed position and
5 position the offset pin in the arcuate slot when the knife is fully open;
6 a blade configured to rotate about a pivot axis, and having a hole configured to
7 receive the latch cam, the latch cam rotating in a direction that is opposite to a direction of blade
8 rotation when the blade is open less than a predetermined angle.

1 23. The knife of Claim 22, further comprising:
2 a torsional spring configured to exert a force on the blade in the direction of blade
3 opening.

1 24. The knife of Claim 23, wherein the torsional spring exerts a force
2 sufficient to open the blade to a fully open position when the offset pin is located substantially
3 within the arcuate slot.

1 25. A method of positioning a blade of a folding knife, the method
2 comprising:
3 receiving at a closed knife an external force configured to open the blade;
4 moving a position of an offset cam pin from within a convex extension to
5 substantially within an arcuate slot; and
6 applying an opening force configured to open the blade to a fully open position
7 without additional external force.

1 26. The method of Claim 25, wherein the act of moving the position of the
2 offset cam pin comprises rotating a latch cam positioned in a hole in the blade to move the offset
3 cam pin from the convex extension to substantially within the arcuate slot.

1 27. The method of Claim 25, wherein the act of moving the position of the
2 offset cam pin comprises rotating a latch cam in a direction that is opposite to a direction of
3 rotation of the blade.

1 28. The method of Claim 25, wherein the act of applying the opening force
2 comprises applying a torsional force to the blade.

1 29. The method of Claim 25, wherein the act of applying the opening force
2 comprises applying a force to the blade using a torsional spring.

1 30. A folding knife comprising:
2 means for receiving at a closed knife an external force configured to open a blade;
3 means for repositioning an offset cam pin from within a convex extension to
4 substantially within an arcuate slot; and
5 means for applying an opening force configured to open the blade to a fully open
6 position without additional external force.
7